

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Official Action dated August 12, 2005. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

Claims 1-11 and 21 are under consideration in this application. Claims 1-2, 5-7 and 9-10 are being amended, as set forth above and in the attached marked-up presentation of the claim amendments, in order to more particularly define and distinctly claim Applicants' invention. A new claim 21 is being added to recite another embodiment described in the specification.

All the amendments to the claims are supported by the specification. Applicants hereby submit that no new matter is being introduced into the application through the submission of this response.

Prior Art Rejection

Claims 1-11 were rejected under 35 U.S.C. § 103(a) on the grounds of being unpatentable over US Patent No. 5,077,736 to Dunphy et al. (hereinafter "Dunphy") in view of US Patent No. 5,155,835 to Belsan et al. (hereinafter "Belsan"), and further in view of US Pat. App. Pub. No. 2002/0152339 of Yamamoto (hereinafter "Yamamoto"). Several references listed in the PTO-892 were cited as pertinent to the disclosure of the invention. This rejection has been carefully considered, but is most respectfully traversed in view of the claims currently on file, as more fully discussed below.

The disk array system 600 of the invention, as recited now in claim 1 (e.g., Fig. 1), comprises: a plurality of storage devices 300 for storing data; a storage device control unit 100 for controlling to store data in said plurality of storage devices 300; a connection unit being connected with said storage devices; a plurality of first channel control units CHAs 110 (e.g., Fig. 7) each having a first processor 112 converting file data, receiving said file data sent from a host computer through an local area network 400, into block data and requiring to store said data in said plurality of storage devices 300 and a second processor 119 transferring said block data to said plurality of storage devices 300 through said connection unit 150 and said storage device control unit 100 in response to

said request sent from said first processor 112, and said plurality of first channel control units 110 being connected with said connection unit 150 and said local area network 400; a shared memory 120 for storing control information to be transferred between said plurality of first channel control units 110 and said storage device control unit 100; and a cache memory 130 for temporarily saving data to be transferred between said plurality of first channel control units 110 and said storage device control unit 100. The second processor 119 located in each said plurality of first channel control units 110 divides a plurality of first storage areas and one or more second storage areas in said plurality of storage devices 300 ("The software of the CPU 112 is stored in the storage device 300 by means of the network installing operation (p. 42, last two lines; Fig. 15.)"). The first storage areas are used to store said block data sent from a host computer, and the second storage areas are used to store processor information regarding a processing state of each of said first processors 112 to be transferred among said plurality of said first processors 112 and one or more software programs which are executed by said first processors 112. The storage device control unit 100 copies said processor information and said software programs stored in said second storage area into a backing up storage area (p. 5, last three lines; e.g., LU 6 in Fig. 15; "The LU 6 is a backup LU for the shared LU, which is used for backing up the information of the LU 3 (p. 43, lines 12-13).").

A disk array system according to the present invention provides the features:

- (1) second storage areas used to store processor information regarding a processing state of each of said first processors and one or more software programs which are executed by said first processors converting file data into block data are divided in said plurality of storage devices,
- (2) said storage device control unit copies said processor information and said software programs stored in said second storage area into a backing up storage area
- (3) said second processor divides a plurality of first storage areas and one or more second storage areas in said plurality of storage devices.

Then, software programs stored in the second storage area in the plurality of storage devices are executed by said first processors which convert file data into block data in said plurality of storage devices. By copying said processor information stored in said second storage area into a backing up storage area, the invention provides efficient reliability with regard to the processing information and the software programs stored in the second storage areas thereby reducing the risk of uncontrollable circumstances.

Applicants respectfully submit that none of the cited prior art references teaches or

suggests the (1)-(3) features of the invention.

Dunphy's history log memory 404 in Fig. 4 was relied upon by the Examiner to anticipate the second/processor information storage area (p. 4, last paragraph of the outstanding Office Action). However, the history log memory 404 merely stores "history and error logs (col. 12, line 65 to col. 13, line 1)," but not any "software programs which are executed by said first processors" as in the invention.

Belsan and Yamamoto fail to compensate for Dunphy's deficiencies.

Applicants contend that Dunphy, Belsan, Yamamoto and their combination all fail to teach or suggest each and every feature of the present invention as recited in independent claim 1. As such, the present invention as now claimed is distinguishable and thereby allowable over the rejections raised in the Office Action. The withdrawal of the outstanding prior art rejections is in order, and is respectfully solicited.

Conclusion

In view of all the above, clear and distinct differences as discussed exist between the present invention as now claimed and the prior art reference upon which the rejections in the Office Action rely, Applicants respectfully contend that the prior art references cannot anticipate the present invention or render the present invention obvious. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicants' undersigned representative at the address and phone number indicated below.

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November 14, 2005
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